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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,480

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Hiroshi Rikimaru

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EXAMINER

SKED, MATTHEW J

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/538,480	Applicant(s) RIKIMARU, HIROSHI	
	Examiner Matthew J. Sked	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 9/24/07 have been fully considered but they are not persuasive. As per claims 1, 2 and 8-10, Applicant argues that Wright et al. (U.S. Pat. 6,109,107) does not teach "a Noise-Vocoded Speech Sound signal that is obtained by dividing at least one portion of a sound signal into a frequency band signal and subjecting the frequency band signal to noise." The Examiner respectfully disagrees. Wright teaches a system for diagnosing specific language impairments by having the user detect a target sound in the presence of a masking noise (col. 2, line 64 to col. 3, line 48). The testing signal that is presented to the user is demonstrated in Fig. 2. In this diagram, illustrative demonstrations of target-mask stimuli pairs are shown (specifically this is the target signal pitch and its corresponding masking noise in the frequency spectrum). These pairs demonstrate either frequency masking where the frequency of the signal is within the frequency band of the masker (T10 and M10) or off-frequency masking where the frequency of the signal is outside the frequency band of the masker (T11-T13 and M11-M13). Therefore, as demonstrated by the diagram, depending on the arrangement, the masking noise is only added to desired frequency ranges. This necessarily is a Noise-Vocoded Speech Sound Signal as described in the claim because it is a target signal that has been subjected to noise on particular bands of the signal.

At no point does Applicant point out how the masked noise signal of Wright is different from the invention as claimed. The Applicant merely points to "advantageous

effects" mentioned in his specification. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., recognition results are unique to each disease and therefore can be utilized for a highly accurate diagnosis) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The rejection stands.

2. Applicant's arguments in regards to the alternative rejection in view of Sturner et al. (U.S. Pat. 5,303,327) are moot in view of the Wright rejection.
3. As per claims 9 and 10, Applicant has amended the claims and states that the claims are now directed to statutory subject matter. The Examiner respectfully disagrees. First, the claim now states "A computer program product", but there is no support in the specification or in the claim previously to support the term "product" and therefore is new matter. Second, reading "computer program product" in light of the claim as a whole indicates that the "computer program product" is nothing more than the computer program itself which does not fall within one of the four enumerated statutory categories under 101.

The rejection stands.

4. Claims 14 and 15 have been newly added.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 9 and 10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are drawn to a "program" *per se* as recited in the preamble and as such is non-statutory subject matter. See MPEP § 2106.IV.B.1.a. Data structures not claimed as embodied in computer readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be realized. In contrast, a claimed computer readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and

other claimed elements of a computer, which permit the computer program's functionality to be realized.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 9 and 10 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The term "computer program product" was not described in the specification or the claims as originally written. One of ordinary skill in the art at the time of invention would not know what the term "computer program product" encompasses.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 2, 7-10 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Wright et al. (U.S. Pat. 6,109,107).

As per claims 1, 2, 8-10 and 14, Wright teaches a diagnostic method, device and program comprising:

outputting a Noise-Vocoded Speech Sound signal (presents the individual with several patterns of target sound stimuli and mask sound stimuli, col. 3, lines 29-48) that is obtained by:

dividing at least one portion of a sound signals into a plurality of frequency band signals (Fig. 2); and

subjecting the frequency band signal to noise (provides target-mask stimuli pairs, col. 4, lines 13-58);

receiving a response of a patient (individuals indicates if they perceive the target stimulus, col. 4, lines 13-58); and

diagnosing a disease of the patient based on the response (determines if the individual has a language impairment, col. 2, line 64 to col. 3, line 28 and col. 4, lines 13-58).

10. As per claim 7, Wright teaches a sound signal extracting procedure for extracting only a sound component from a sound signal, wherein the Noise Vocoded Speech Sound signal is obtained by converting at least one portion of the extracted sound component to a Noise Vocoded Speech Sound signal (target stimuli is a sound signal component, col. 3, lines 29-48).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 3, 5, 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright in view of Sturner et al. (U.S. Pat. 5,303,327).

As per claims 3 and 11, Wright does not teach wherein a disease is estimated with reference to a disease database, based on information corresponding to the output Noise Vcoded Speech Sound signal and the response.

Sturner teaches a system for user diagnosis wherein a disease is estimated with reference to a disease database, based on information corresponding to the output Noise Vcoded Speech Sound signal and the response (model to determine if further testing is needed, col. 5, lines 30-47).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Wright wherein a disease is estimated with reference to a disease database, based on information corresponding to the output Noise Vcoded Speech Sound signal and the response as taught by Sturner because it would allow the system to detect specific diseases.

13. As per claims 5 and 6, Wright teaches dividing the signal into different frequency bands but does not teach doing this dependent upon the language.

Sturner teaches wherein at least one of a number of the band filtering procedures for division into frequency band signals and a frequency of a frequency band boundary can be changed, at least depending on the language (system accounts for regional dialects, col. 5, lines 48-67).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Wright to change the frequency band boundary dependent on the language as taught by Sturner because the target stimuli would change depending on the language and the masking effect correspondingly would need to create the appropriate masking effects for the test.

14. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright in view of Applicant's admitted prior art.

As per claims 4 and 15, Wright does not teach wherein the Noise-Vocoded Speech Sound signal in which a component of a sound source signal is subjected to noise is generated by: extracting a frequency band signal with a predetermined frequency band from at least one portion of the sound signal by a first band filtering procedure having a plurality band filtering procedures; extracting an amplitude envelope of each frequency signal by an envelope extracting procedure; generating a frequency band noise signal corresponding to the predetermined frequency band from a noise source signal by a second band filtering procedure having a plurality of band filtering procedures; multiplying the frequency band signal by the frequency band noise

signal in a multiplying procedure; and accumulating outputs obtained by the multiplying procedure in an adding procedure.

Applicant's admitted prior art teaches wherein the Noise-Vocoded Speech Sound signal in which a component of a sound source signal is subjected to noise is generated by: extracting a frequency band signal with a predetermined frequency band from at least one portion of the sound signal by a first band filtering procedure having a plurality band filtering procedures; extracting an amplitude envelope of each frequency signal by an envelope extracting procedure; generating a frequency band noise signal corresponding to the predetermined frequency band from a noise source signal by a second band filtering procedure having a plurality of band filtering procedures; multiplying the frequency band signal by the frequency band noise signal in a multiplying procedure; and accumulating outputs obtained by the multiplying procedure in an adding procedure (pg. 2, lines 7-16).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Wright wherein the Noise-Vocoded Speech Sound signal in which a component of a sound source signal is subjected to noise is generated by: extracting a frequency band signal with a predetermined frequency band from at least one portion of the sound signal by a first band filtering procedure having a plurality band filtering procedures; extracting an amplitude envelope of each frequency signal by an envelope extracting procedure; generating a frequency band noise signal corresponding to the predetermined frequency band from a noise source signal by a second band filtering procedure having a plurality of band filtering procedures;

multiplying the frequency band signal by the frequency band noise signal in a multiplying procedure; and accumulating outputs obtained by the multiplying procedure in an adding procedure as taught by Applicant's admitted prior art because it would ensure that the noise is properly imposed within the required frequency bands.

15. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright in view of Sturner and taken in further view of Applicant's admitted prior art.

As per claims 12 and 13, Wright and Sturner do not teach wherein the Noise-Vocoded Speech Sound signal in which a component of a sound source signal is subjected to noise is generated by: extracting a frequency band signal with a predetermined frequency band from at least one portion of the sound signal by a first band filtering procedure having a plurality band filtering procedures; extracting an amplitude envelope of each frequency signal by an envelope extracting procedure; generating a frequency band noise signal corresponding to the predetermined frequency band from a noise source signal by a second band filtering procedure having a plurality of band filtering procedures; multiplying the frequency band signal by the frequency band noise signal in a multiplying procedure; and accumulating outputs obtained by the multiplying procedure in an adding procedure.

Applicant's admitted prior art teaches wherein the Noise-Vocoded Speech Sound signal in which a component of a sound source signal is subjected to noise is generated by: extracting a frequency band signal with a predetermined frequency band from at least one portion of the sound signal by a first band filtering procedure having a plurality

band filtering procedures; extracting an amplitude envelope of each frequency signal by an envelope extracting procedure; generating a frequency band noise signal corresponding to the predetermined frequency band from a noise source signal by a second band filtering procedure having a plurality of band filtering procedures; multiplying the frequency band signal by the frequency band noise signal in a multiplying procedure; and accumulating outputs obtained by the multiplying procedure in an adding procedure (pg. 2, lines 7-16).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Wright and Sturner wherein the Noise-Vocoded Speech Sound signal in which a component of a sound source signal is subjected to noise is generated by: extracting a frequency band signal with a predetermined frequency band from at least one portion of the sound signal by a first band filtering procedure having a plurality band filtering procedures; extracting an amplitude envelope of each frequency signal by an envelope extracting procedure; generating a frequency band noise signal corresponding to the predetermined frequency band from a noise source signal by a second band filtering procedure having a plurality of band filtering procedures; multiplying the frequency band signal by the frequency band noise signal in a multiplying procedure; and accumulating outputs obtained by the multiplying procedure in an adding procedure as taught by Applicant's admitted prior art because it would ensure that the noise is properly imposed within the required frequency bands.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lemelson et al. (U.S. Pat. 7,110,951), Merzenich et al. (U.S. Pat. 5,813,862) and Jenkins et al. (U.S. Pat. 6,334,776) teach diagnosing diseases of a user based on the modification of outputted speech to the user and gauging their response.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Sked whose telephone number is (571) 272-7627. The examiner can normally be reached on Mon-Fri (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MS
11/15/07


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